

AMENDMENTS TO THE SPECIFICATION

On page 2, please replace the paragraph starting from line 16 to line 25 with the following paragraph:

Retinal (vitamin A aldehyde) is a chromophore that binds integral membrane proteins (opsins) to form light-absorbing pigments called rhodopsins. Rhodopsins are currently known to belong to two distinct protein families. The visual rhodopsins, found in the eye throughout the animal kingdom, are photosensory pigments. ~~Areheal~~ Archaeal rhodopsins, found in extreme halophilic environments, function as light-driven protons pumps (bacteriorhodopsins), chloride ion pumps (halorhodopsins), or photosensory receptors (sensory rhodopsins). The two protein families show no significant sequence similarity and may have different origins. They do, however, share identical topologies characterized by seven transmembrane α -helices that form a pocket in which retinal is covalently linked, as a protonated Schiff base (helix G).

On page 4, please replace the paragraph starting from line 11 to line 15 with the following paragraph:

In light of the above, it is the primary objective of the present invention to provide rhodopsin-like (also referred to here as “proteorhodopsin”) sequences from naturally occurring members of the domain Bacteria. More specifically, it is the objective of the present invention to provide a method to retrieve proteorhodopsin genes from DNA of naturally occurring bacteria that encodes DNA sequence for proteorhodopsin proteins.

On page 7, at line 20, please insert the following paragraph:

The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the Office upon request and payment of the necessary fee.